

WHAT IS CLAIMED IS:

1. An optical transmission device for communicating with a partner device, comprising:

a transmission unit for converting an electrical signal to an optical signal; and

a light receiving unit for converting a received optical signal to an electrical signal, wherein the light receiving unit further comprises,

a position detecting photodetector having a plurality of light receiving units divided by parting lines for detecting the direction of incidence of a luminous flux emitted from the partner device, and

wherein the shape of a spot of the light beam is linearly elongated along at least one axis on the position detecting photodetector.

2. The optical transmission device of claim 1, wherein the spot shape satisfies the relationship:

$$L1/L2 > 3 \text{ and } L1 > 2^{1/2}D$$

where L1 represents the length of the major axis of the linearly elongated spot shape, L2 represents the length of the minor axis of the linearly elongated spot shape, and D represents the width of the parting lines.

3. The optical transmission device of claim 2, wherein the parting lines intersect with the spot shape at an angle.

4. The optical transmission device of claim 2, wherein the spot shape is a cross pattern in which at least two of the patterns overlap with each other.

5. The optical transmission device according to claim 2, wherein the position detecting photodetector comprises at least two parting lines for equally dividing the light receiving area, and wherein the relation

$$\sin^{-1}(D/L1) < |\theta| < \alpha - \sin^{-1}(D/L1)$$

is satisfied, where D represents the width of the parting lines, L1 represents the length of the major axis of the spot shape, α represents the angle formed by the parting lines, and θ represents the angle formed by the parting lines and the major axis of the spot shape.

6. An optical transmission device for communicating with a partner device, comprising:

a transmission unit for converting an electrical signal to an optical signal; and

a light receiving unit for converting a received optical signal to an electrical signal, wherein the light receiving unit further comprises,

a position detecting photo-detector having a plurality of light receiving units divided by parting lines for detecting the direction of incidence of a light beam emitted from the partner device, and

a cross filter for generating one or more striations for detection by the position detecting photodetector, said striations intersecting with the parting lines to correctly detect an optical axis to provide stable communication with the partner device.

7. The device of claim 6, wherein the striations include at least two light beam patterns which overlap each other.